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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,105	09/03/2003	Bin Yu	H1492	2960

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EXAMINER
VU, HUNG K

ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/653,105	YU ET AL.	
	Examiner	Art Unit	
	Hung K. Vu	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *10-15* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-9 and 16-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/3/3,5/19/4,5/21/*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Invention of Group I, Claims 1-9 and 16-20 in the reply filed on 06/18/04 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Applicant's election without traverse of Invention of Group I, Claims 1-9 and 16-20 in the reply filed on 08/16/04 is acknowledged.

Claims 10-15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 08/16/04.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 5-9 and 16-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Fried et al. (PN 6,657,252).

Fried et al. discloses, as shown in Figures 1-13, a semiconductor device, comprising:

a substrate (90);

an insulating layer (99) formed on the substrate;

a fin (100) formed on the insulating layer and including a plurality of side surfaces and a top surface;

a first gate (115) formed on the insulating layer proximate to one of the plurality of side surfaces of the fin;

a second gate (115) formed on the insulating layer separate from the first gate and proximate to another one of a plurality of side surfaces of the fin;

a protective layer (116) formed above the fin, the first gate, and the second gate;

a third gate (120) formed over the protective layer and over the fin.

With regard to claim 2, Fried et al. discloses the device further including:

first and second dielectric layers formed along the plurality of side surfaces of the fin and in contact with the first and second gates, respectively.

With regard to claim 5, Fried et al. discloses the fin comprises at least one of silicon and germanium.

With regard to claim 6, Fried et al. discloses the insulating layer comprises a buried oxide layer.

With regard to claim 7, Fried et al. discloses the device further comprising:

a source and a drain region formed above the insulating layer and adjacent a respective first and second end of the fin.

With regard to claim 8, Fried et al. discloses the first, second, and third gates are independently addressable.

With regard to claim 9, Fried et al. discloses the first and second gates are electrically connected to one another and the third gate is independently addressable from the first and second gates.

With regard to claim 16, Fried et al. discloses, as shown in Figures 1-13, a MOSFET device comprising:

a substrate (90);

an insulating layer (99) formed on the substrate;

a conductive fin (100) formed on the insulating layer;

gate dielectric layers (110) formed on side surface of the conductive fin;

a first gate material layer (115) formed on the insulating layer and around the conductive fin;

a protective layer (116) formed over the conductive fin and the first gate material;

a second gate material layer(120) formed over the protective layer and over the conductive fin.

With regard to claim 17, Fried et al. discloses the MOSFET device is a FinFET.

With regard to claim 18, Fried et al. discloses the first and second gate material layers are formed of polysilicon.

With regard to claim 19, Fried et al. discloses the gate dielectric layers and the conductive fin break the first gate material layer into independently addressable first and second gate of the MOSFET device.

With regard to claim 20, Fried et al. discloses the second gate material forms a third independently addressable gate of the MOSFET device.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fried et al. (PN 6,657,252).

Although Fried et al. does not teach the thickness of the protective layer and the third gate, as that claimed by Applicants, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the protective layer and the third gate having a desired thickness, since it has been held that discovering an optimum value of a result effective

variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Mon-Thurs 6:00-3:30, alternate Friday 7:00-3:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The Central Fax Number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

August 7, 2004

Hung Vu

Patent Examiner